

#4

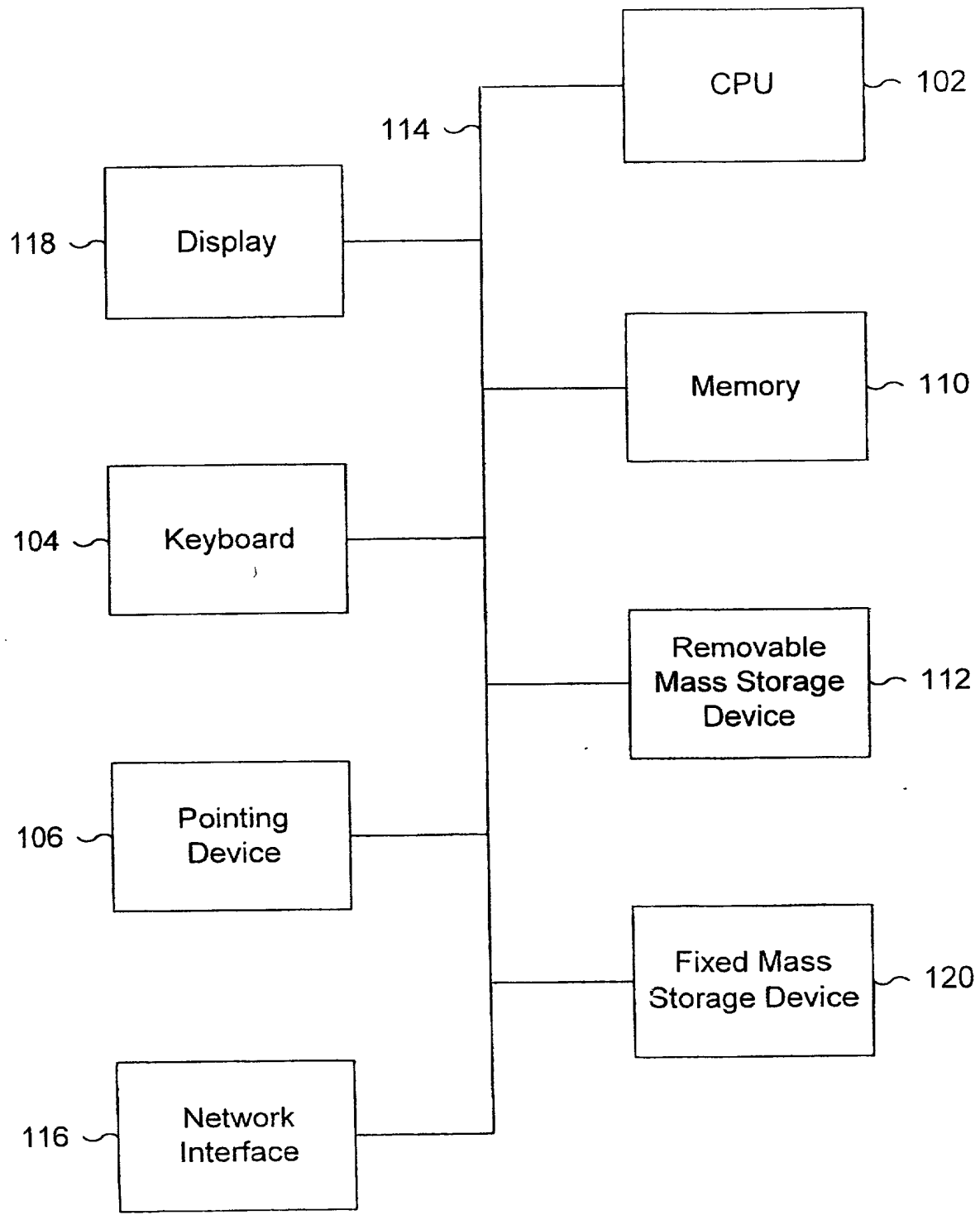


Figure 1

FIG. 1 is a block diagram of a computer system.

Figure 2

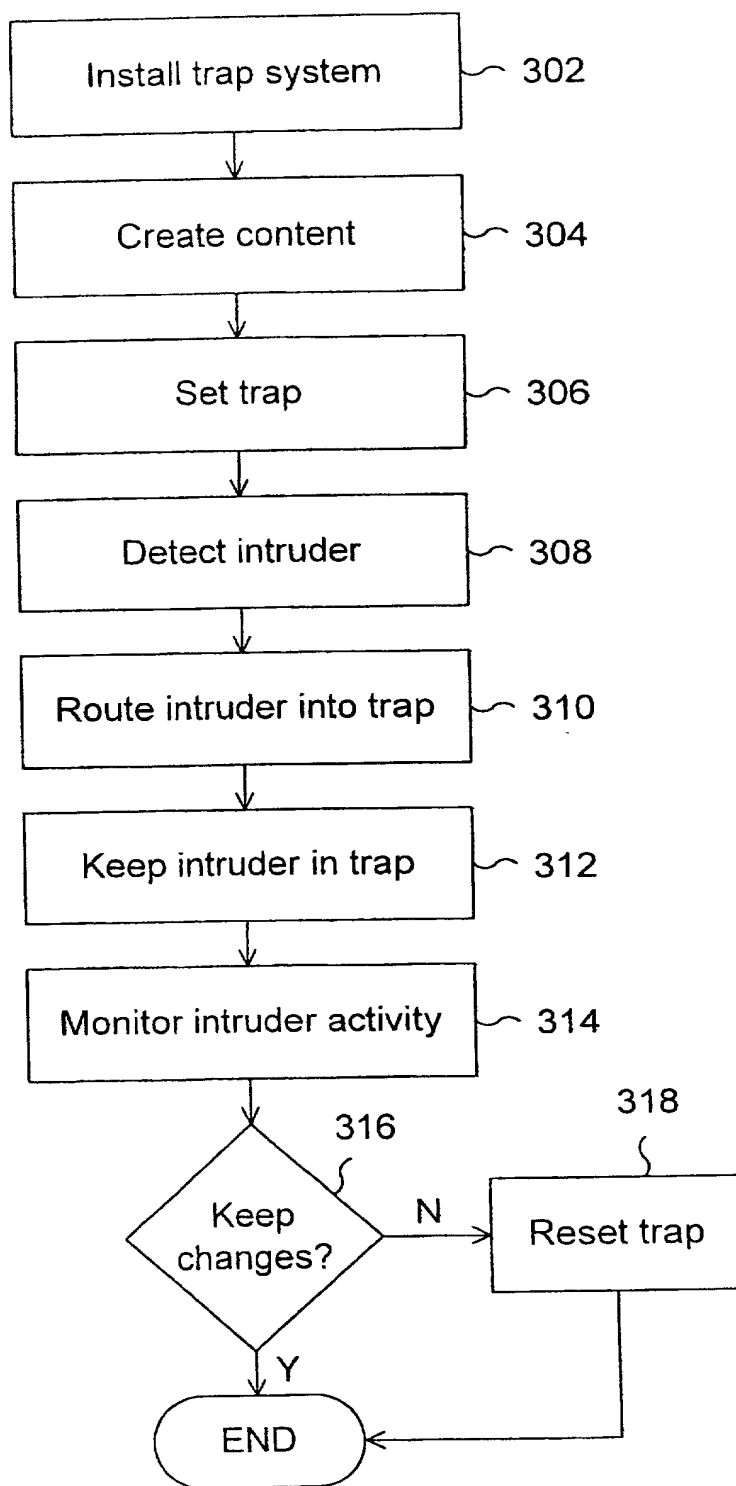


Figure 3

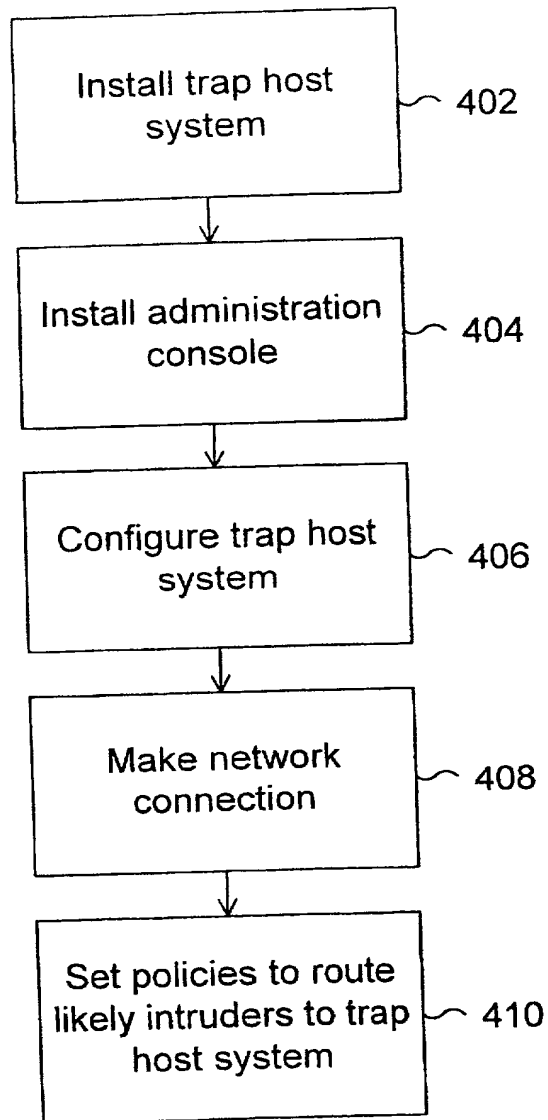


Figure 4

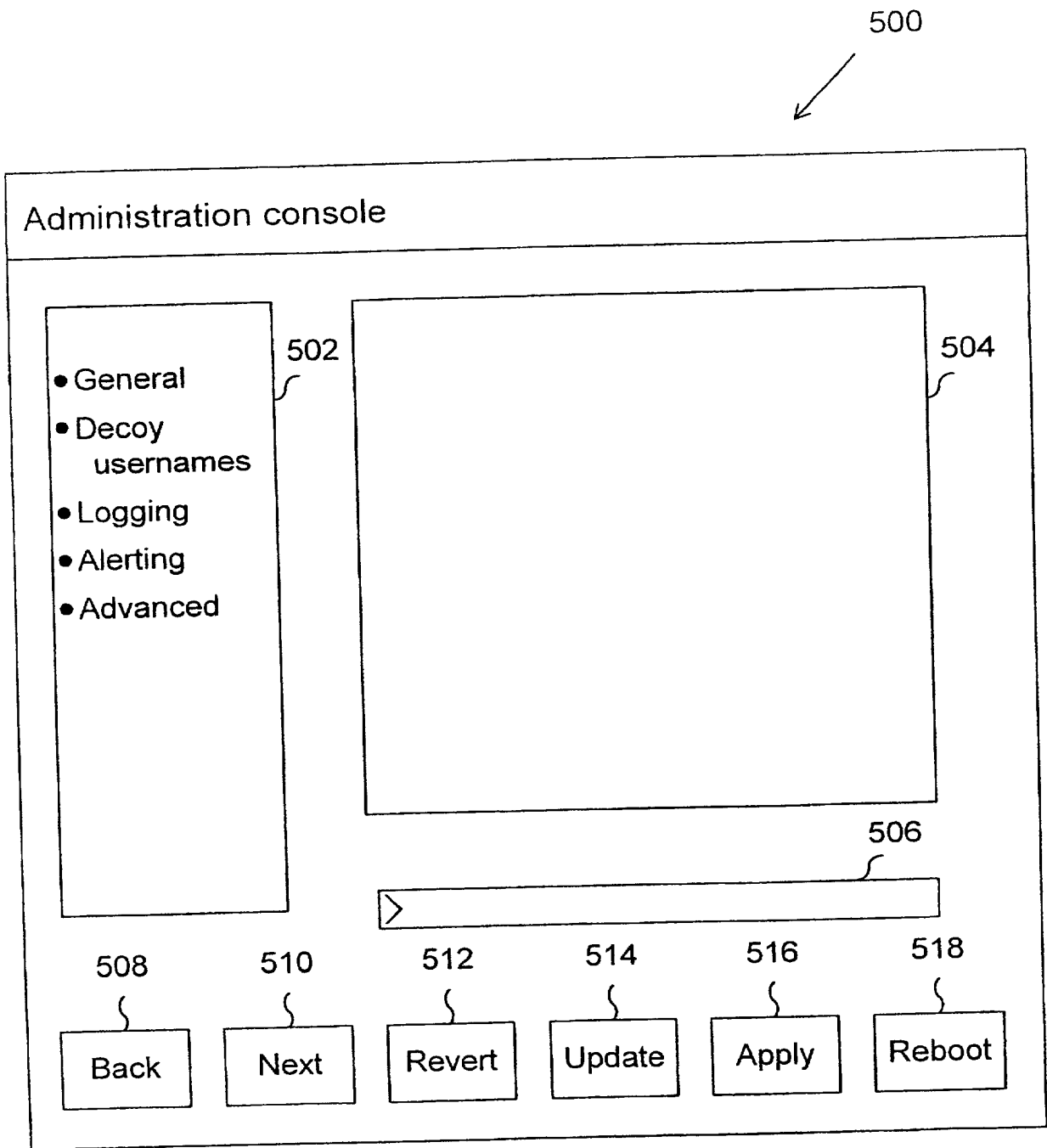


Figure 5

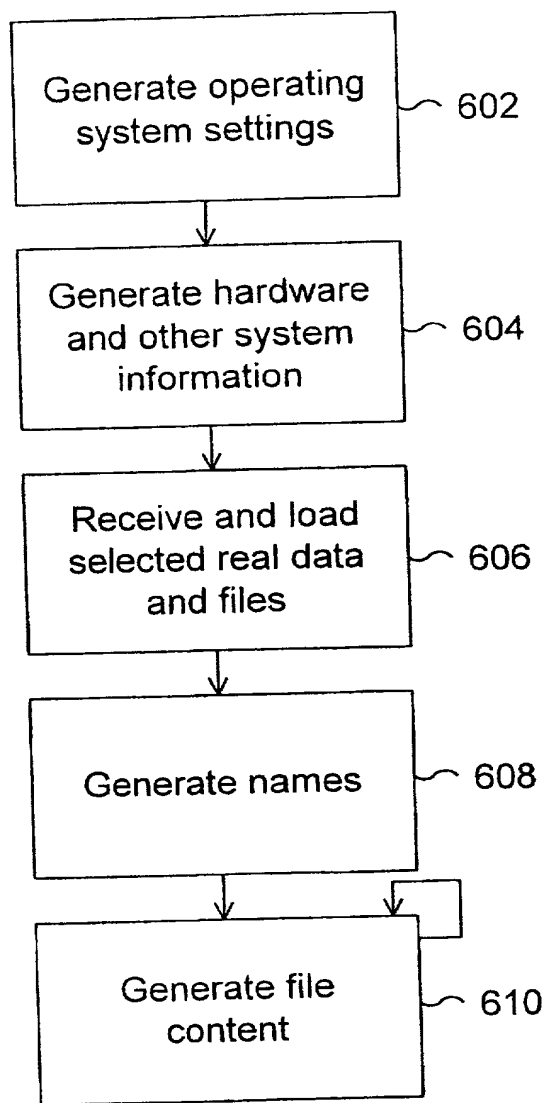


Figure 6

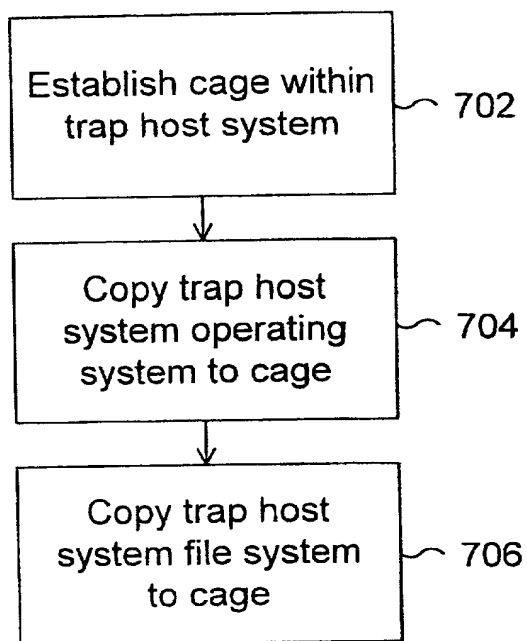


Figure 7

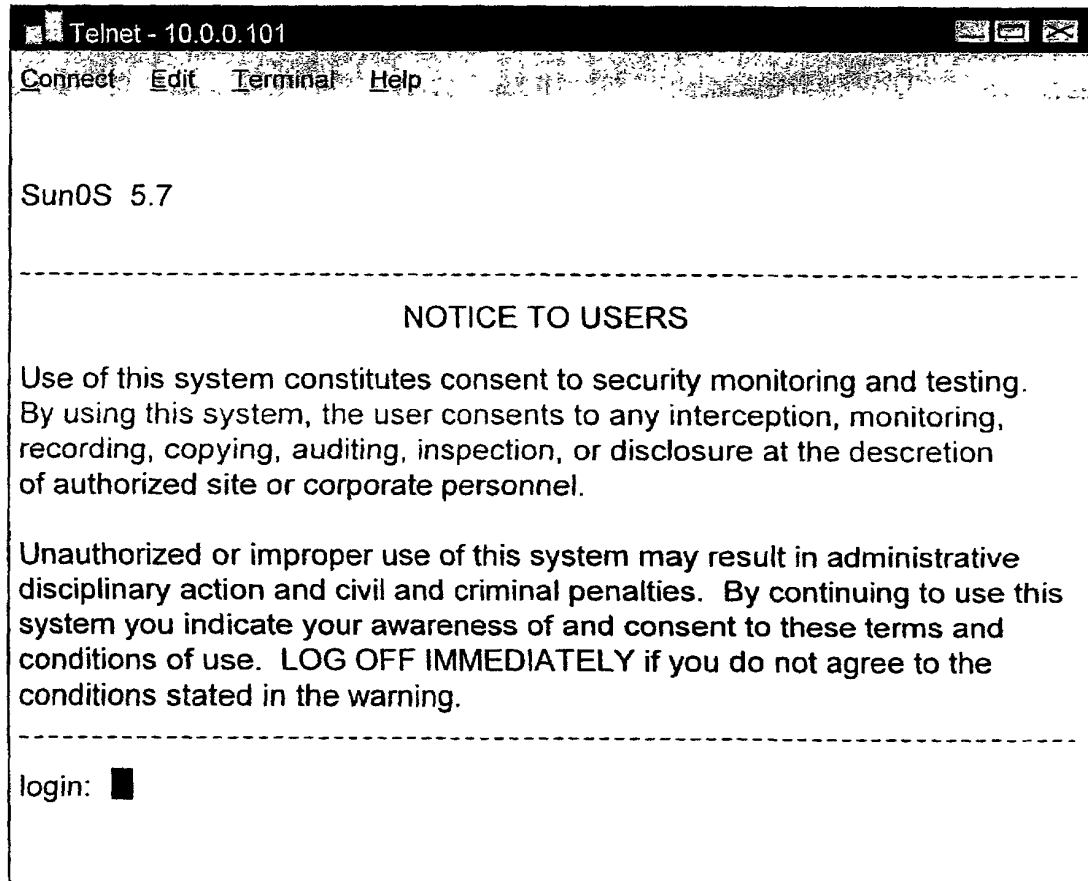


Figure 8

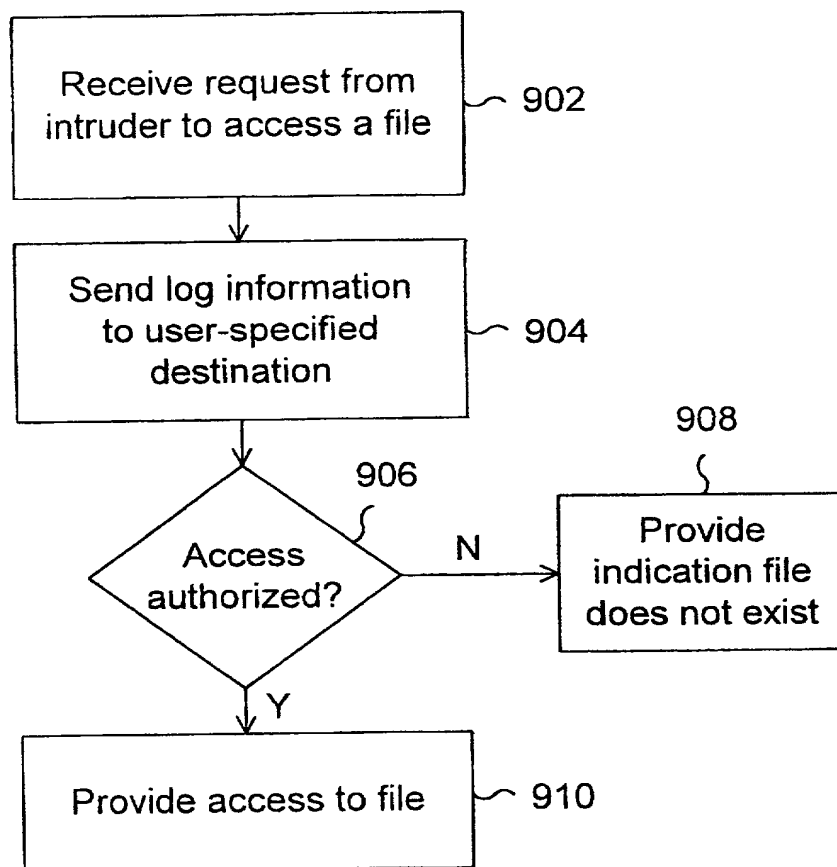


Figure 9

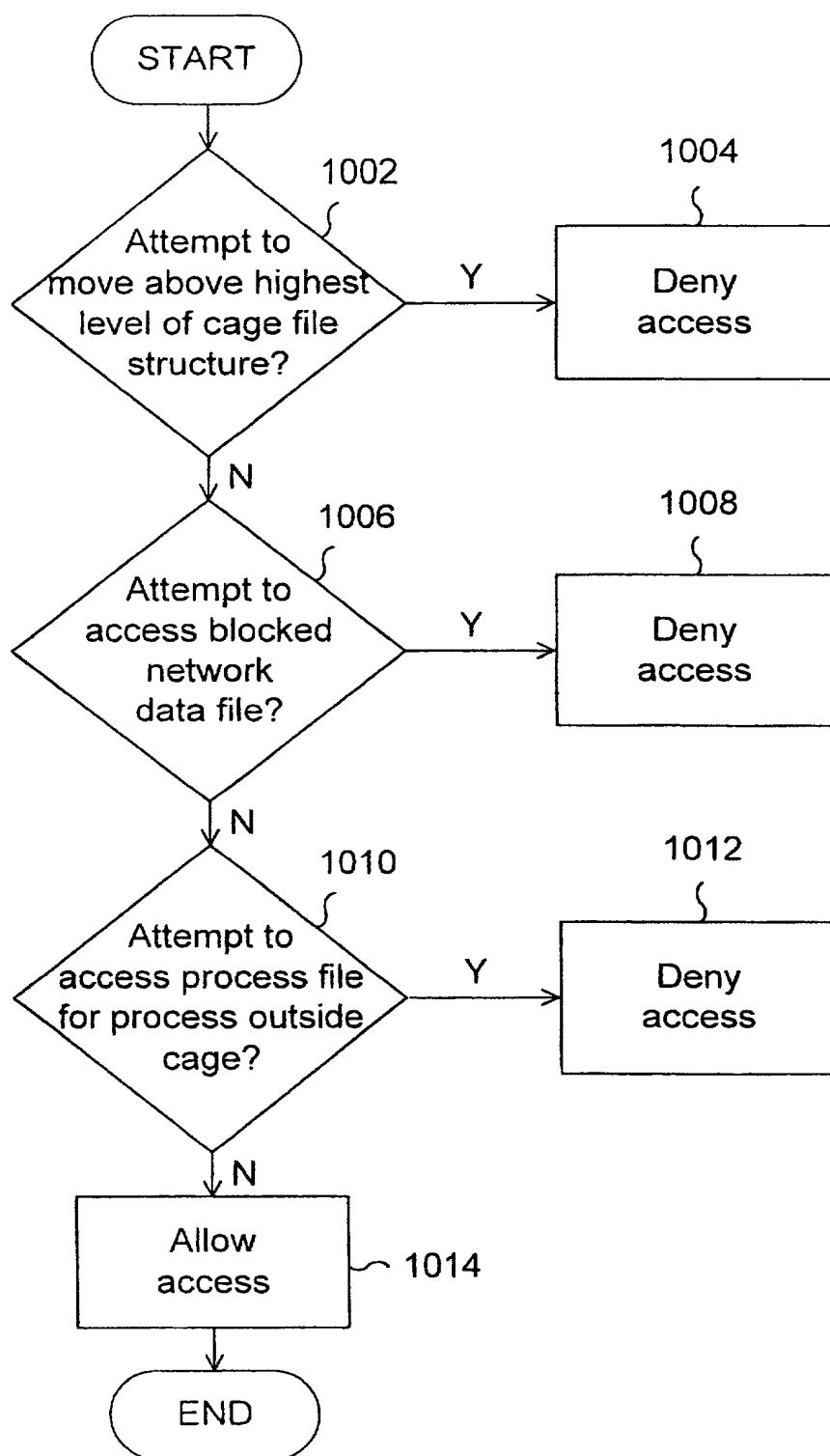


Figure 10

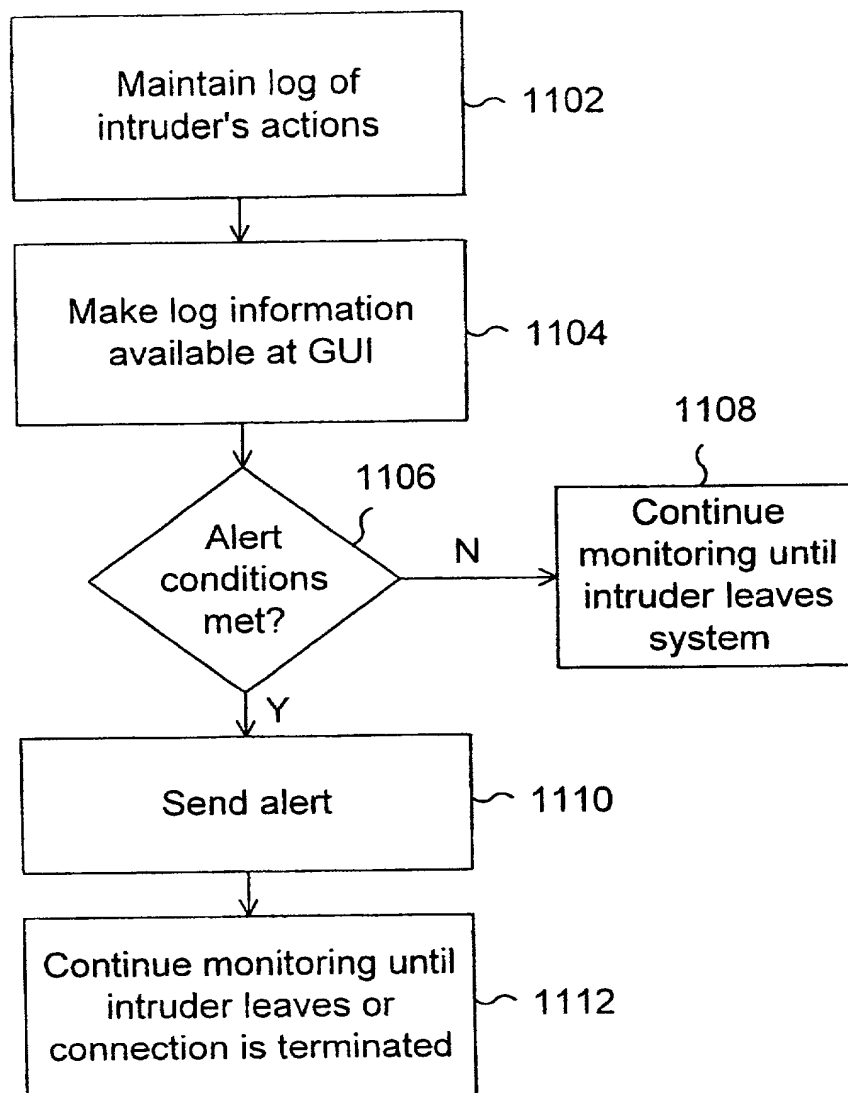


Figure11A

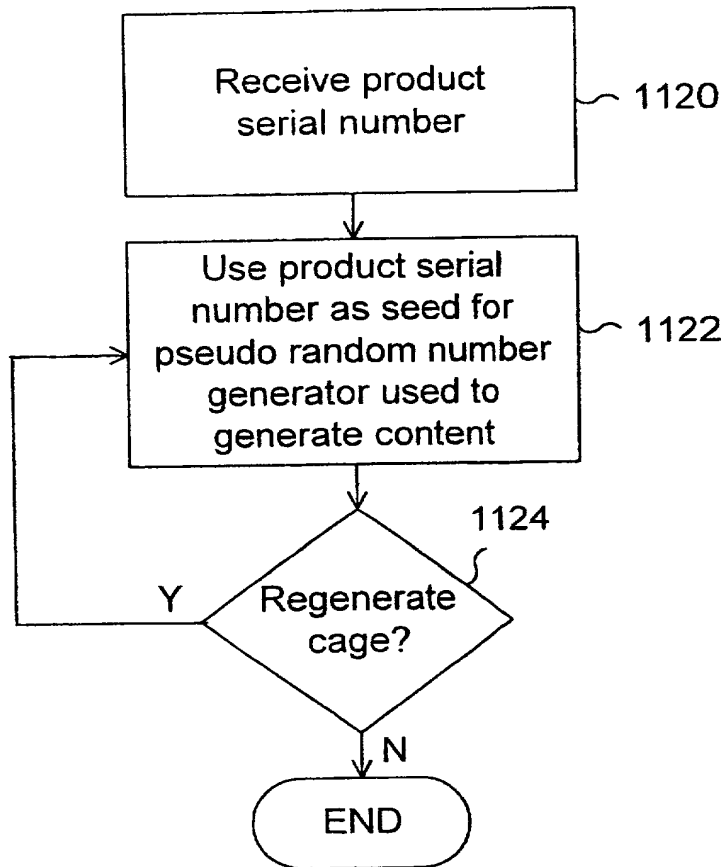


Figure 11B

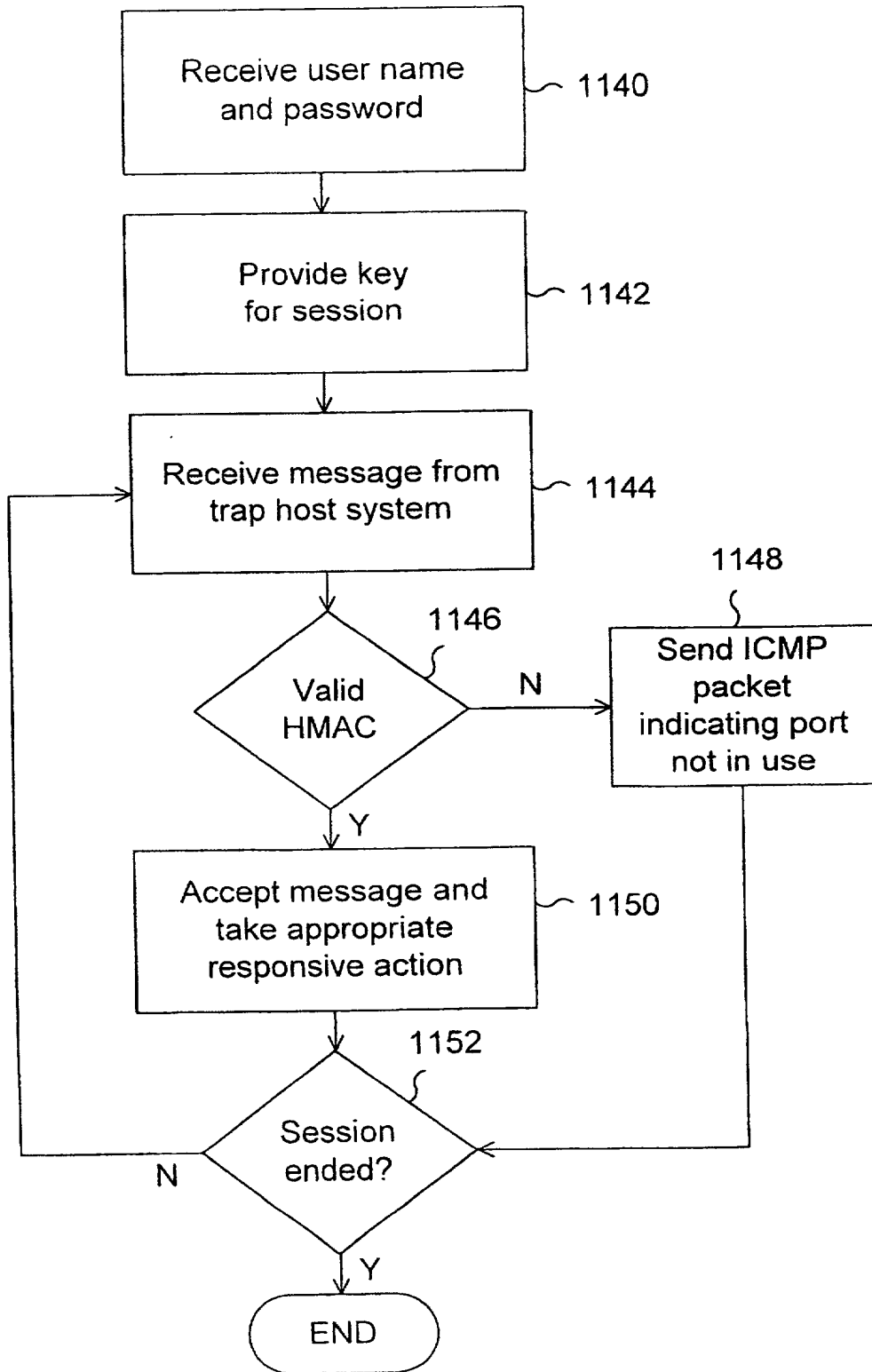


Figure 11C

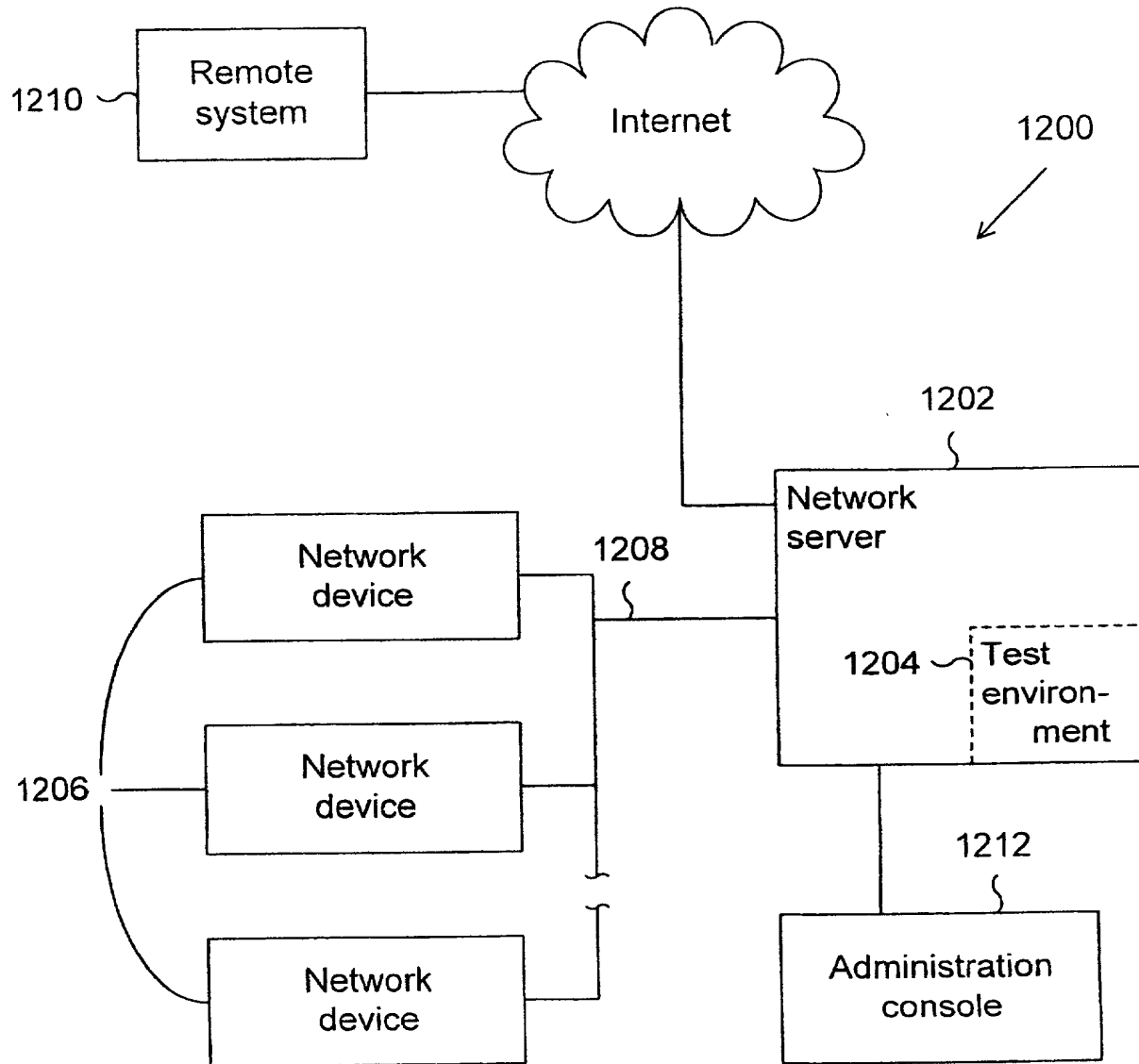


Figure 12

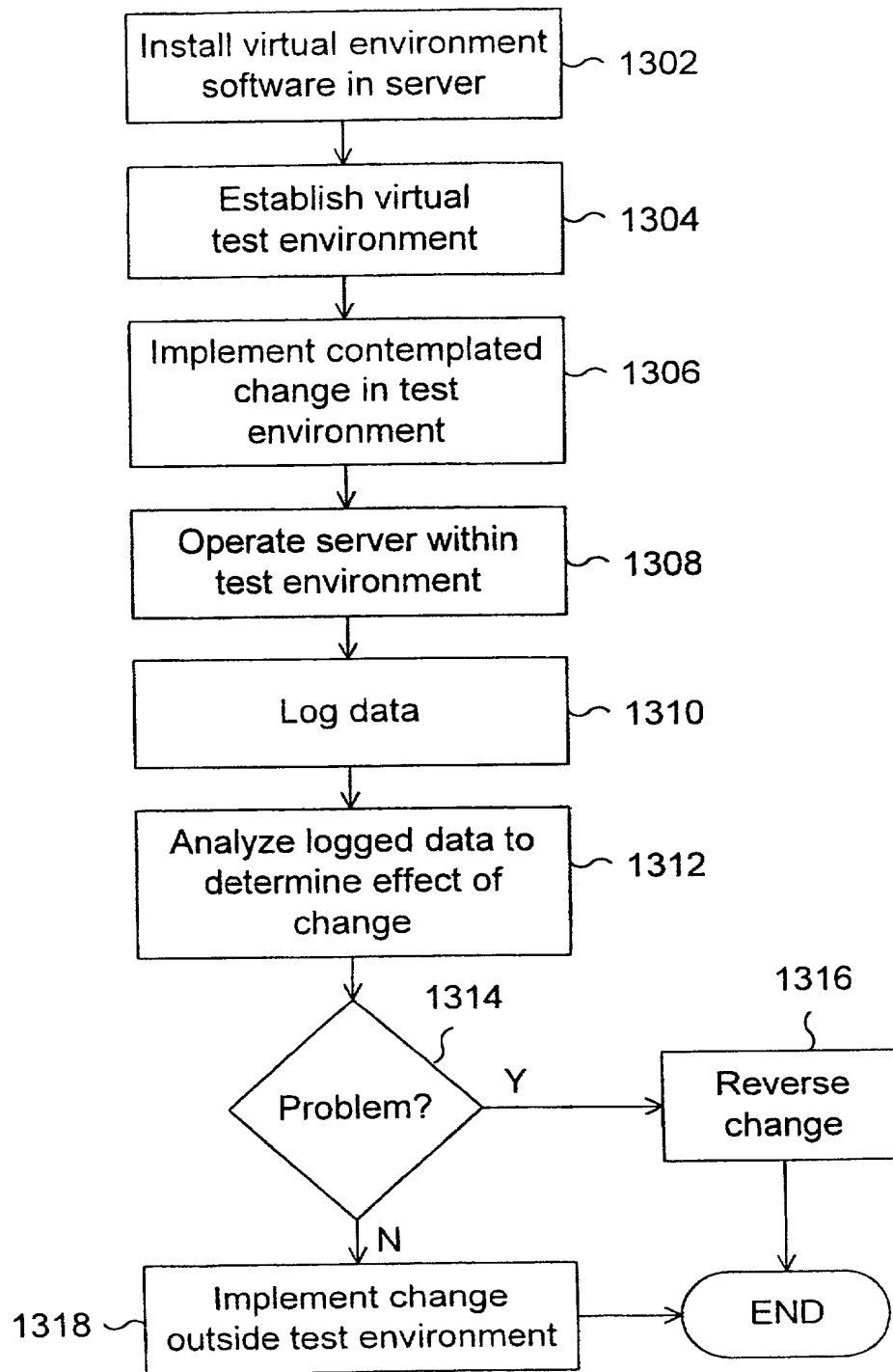


Figure 13

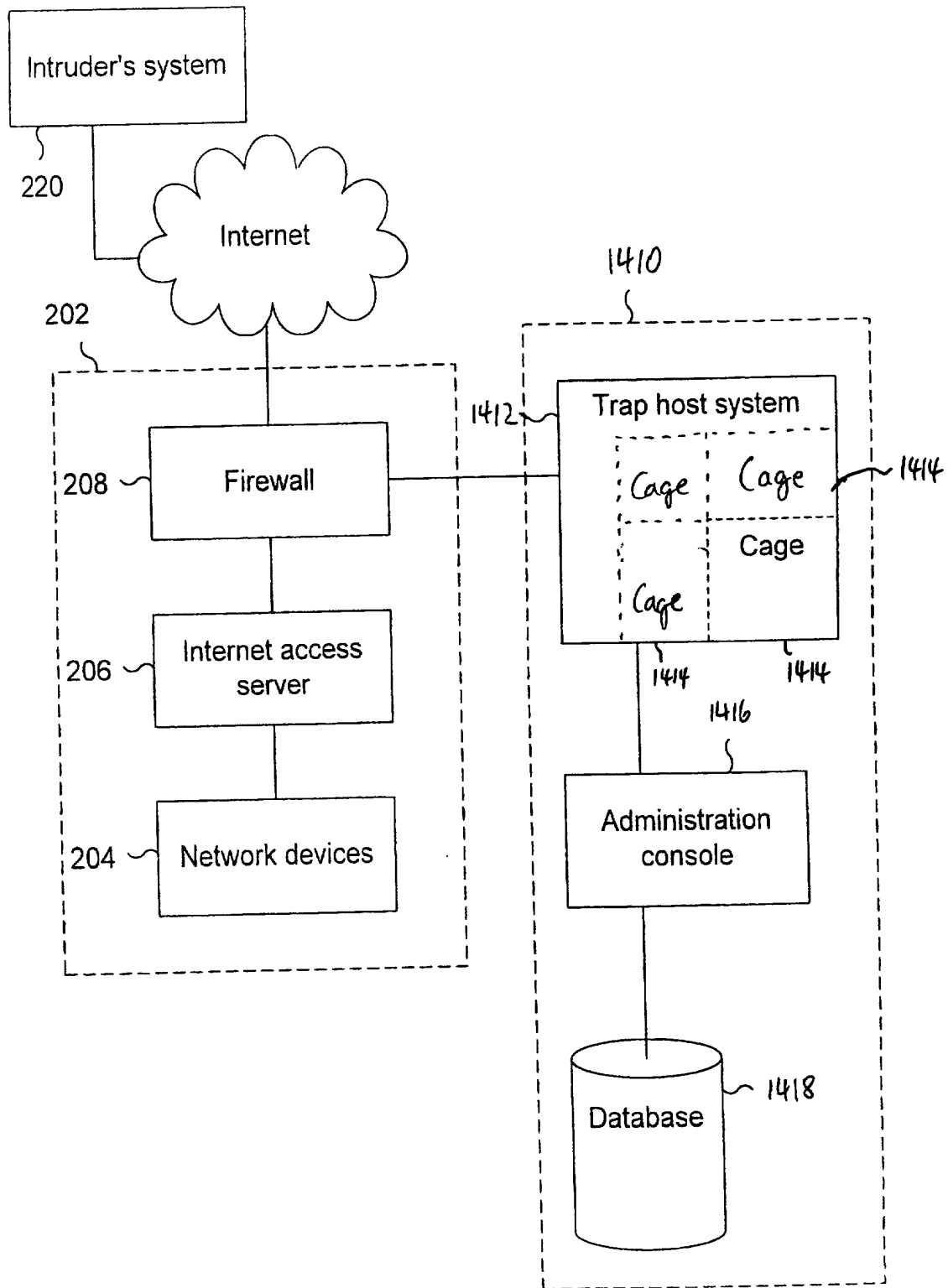


Figure 14

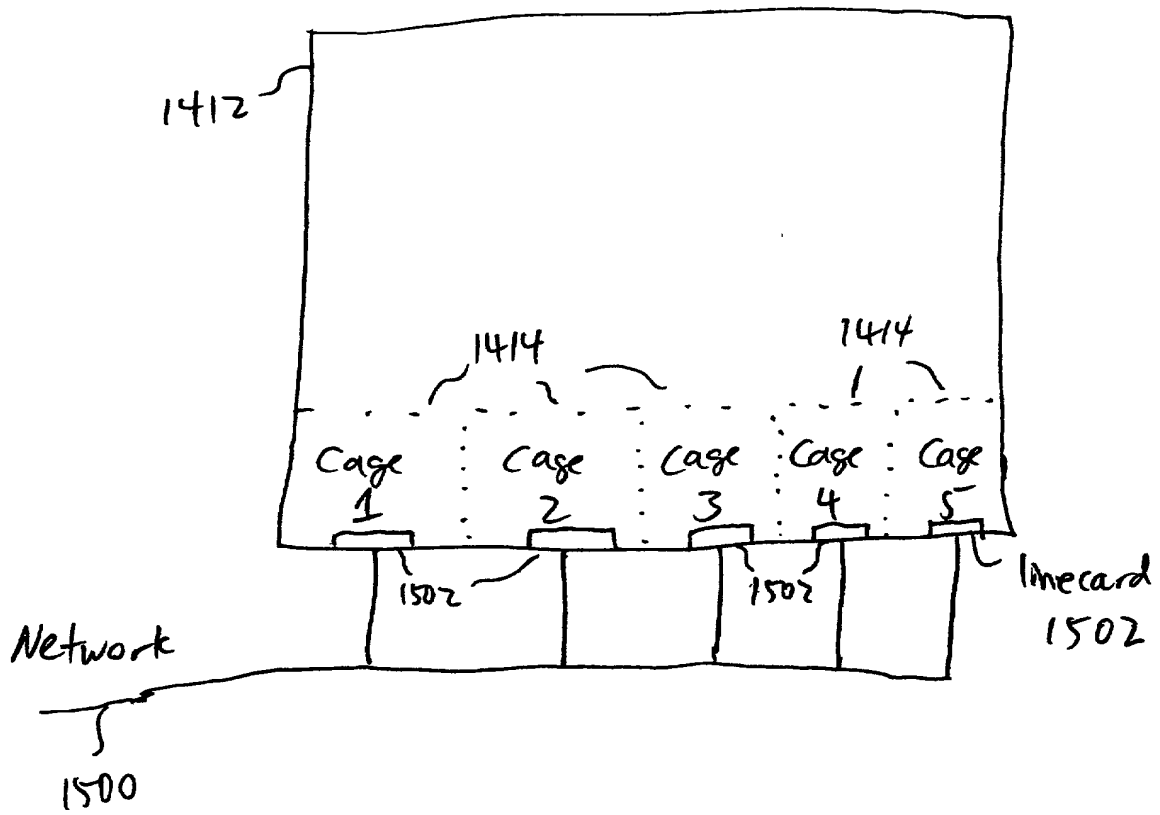


Figure 15

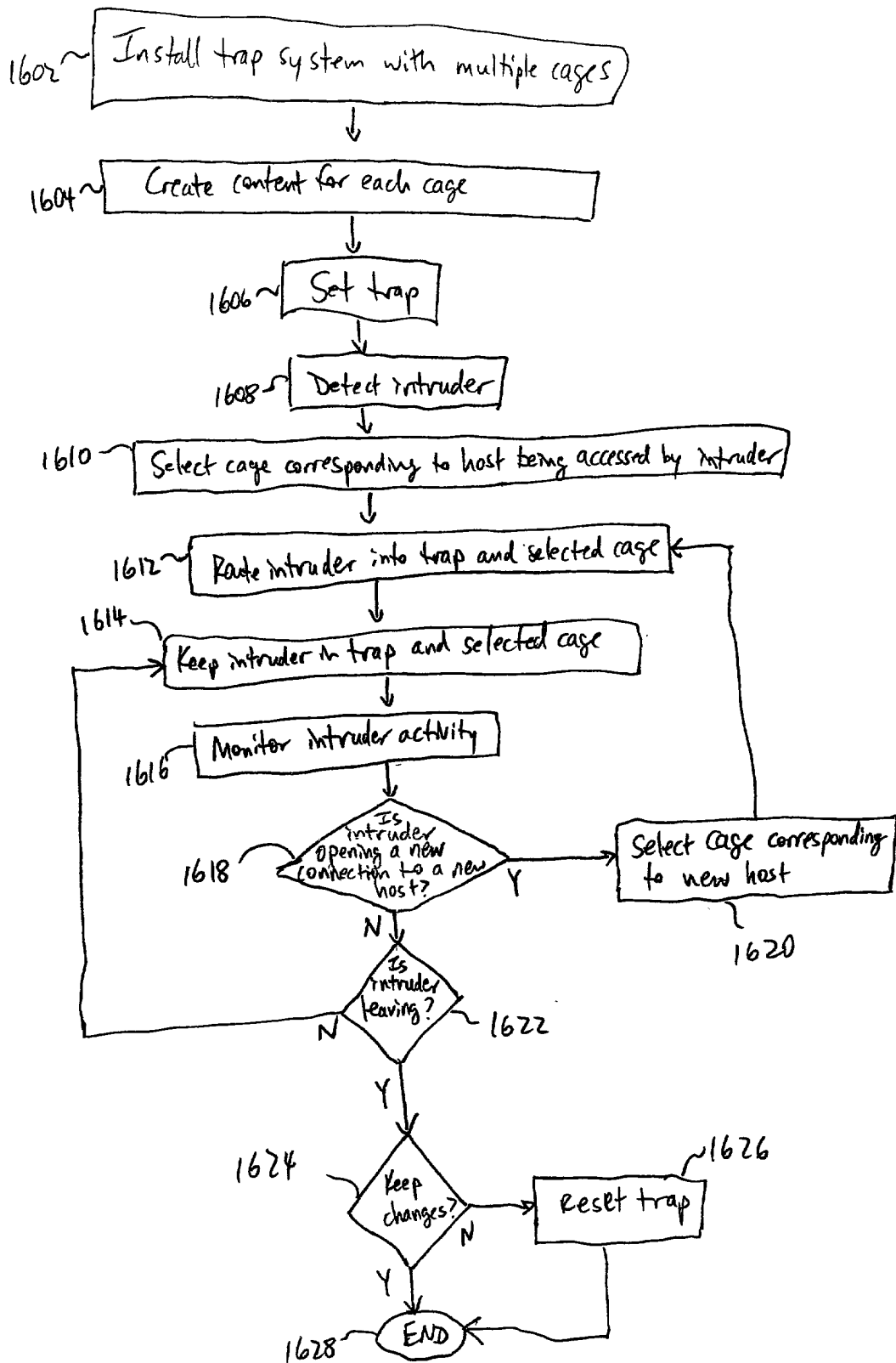


FIGURE 16

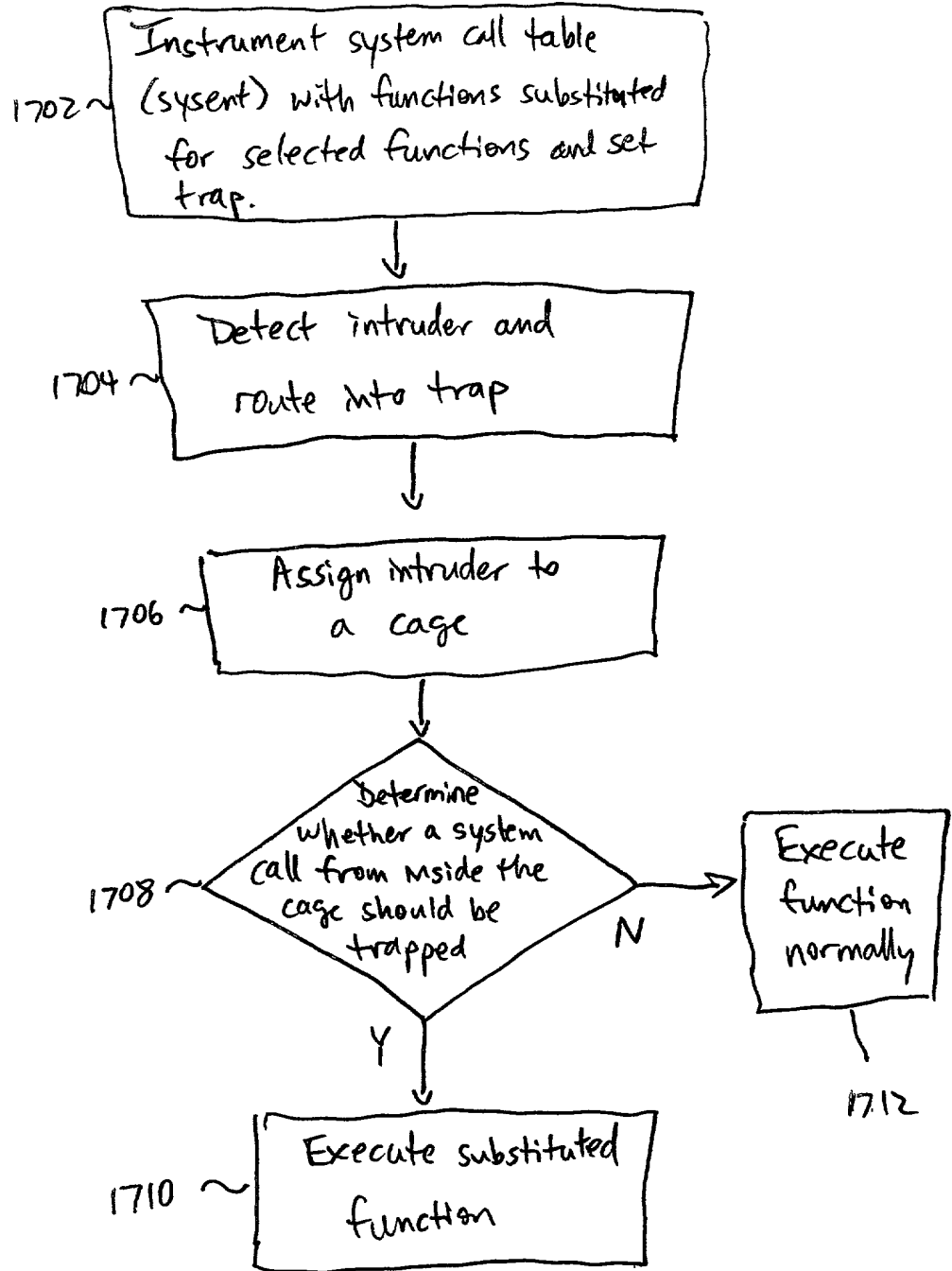


Figure 17

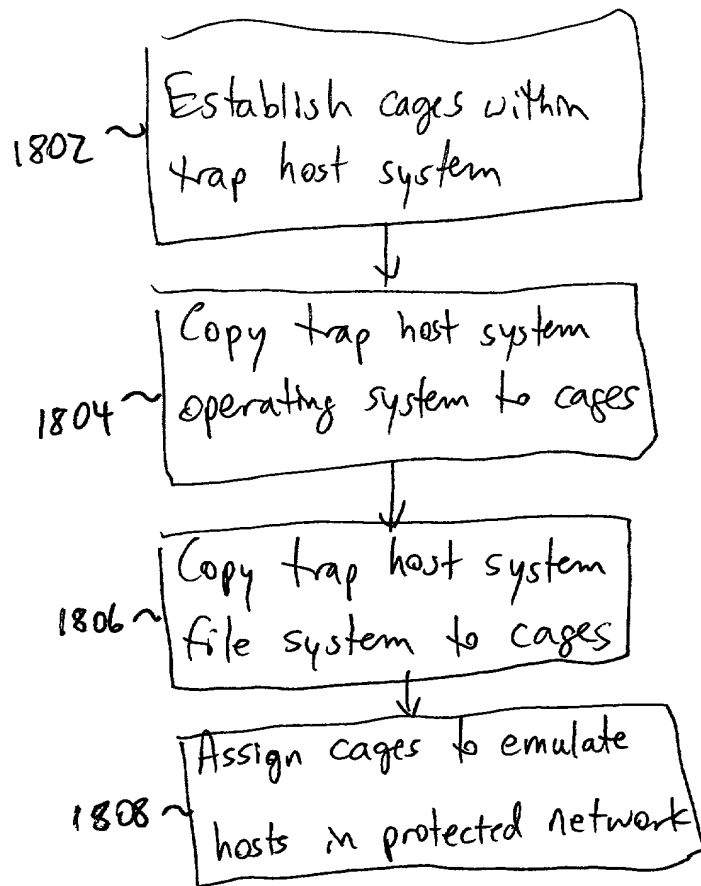


Figure 18

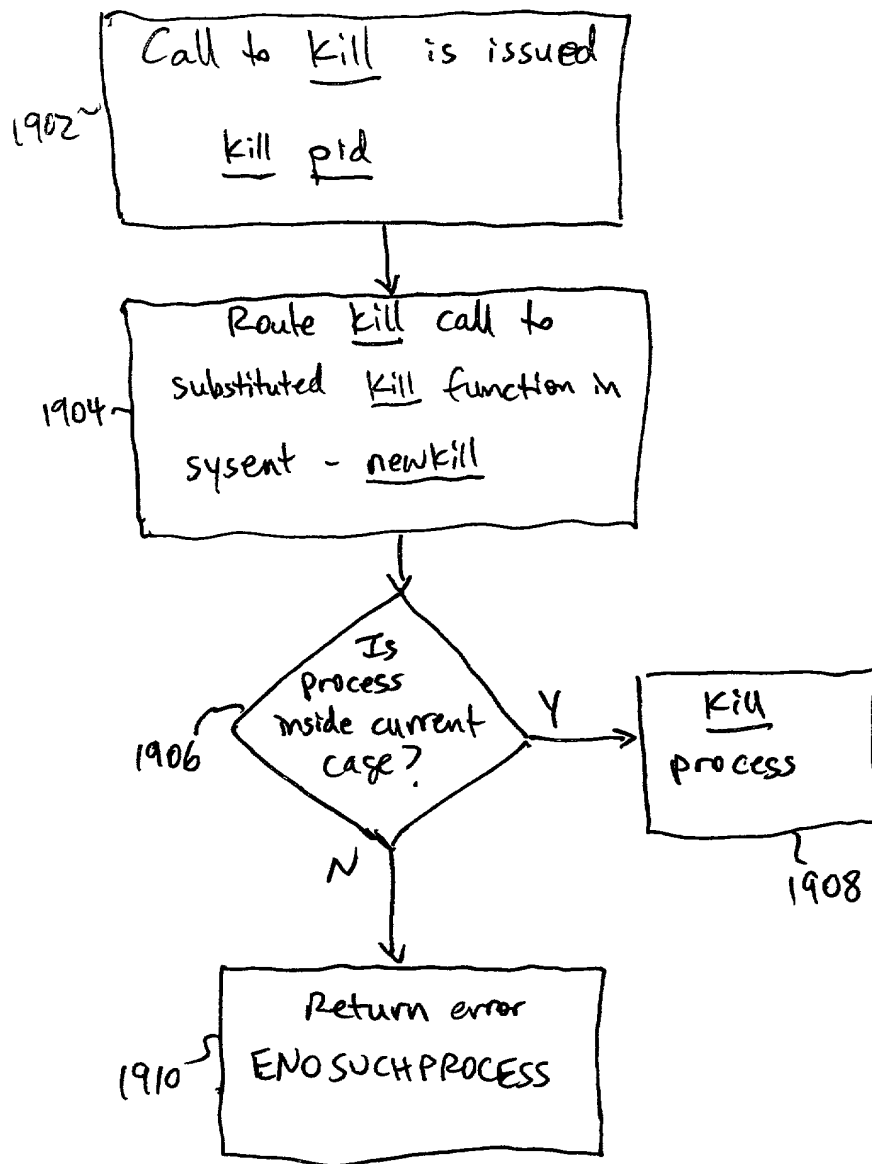


Figure 19

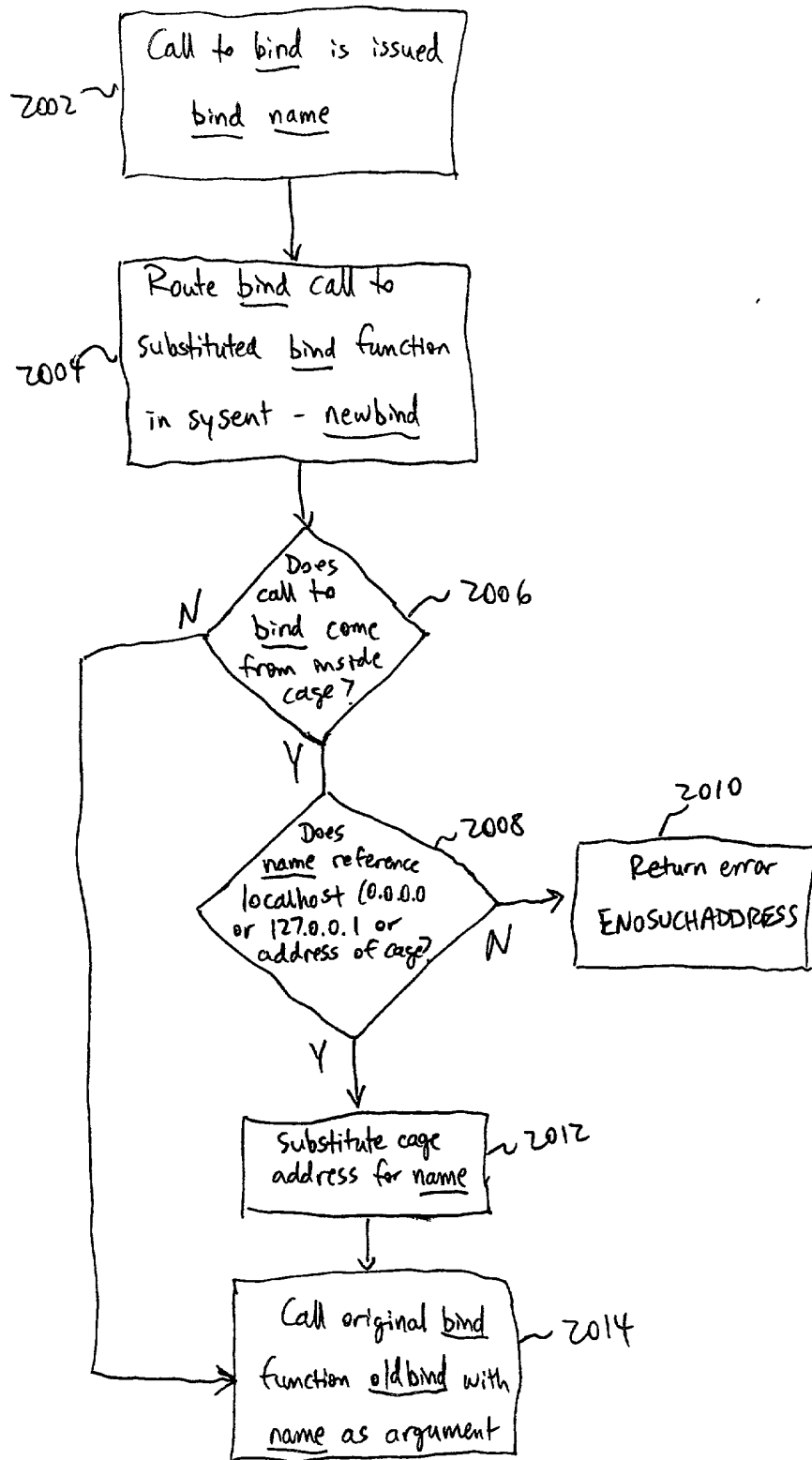


Figure 20

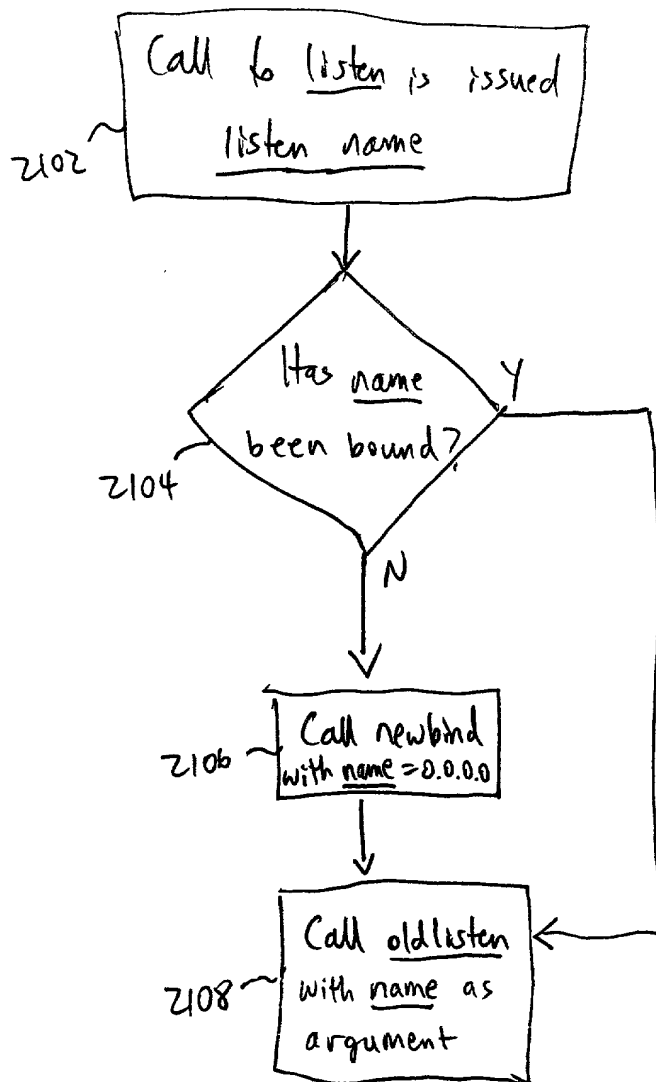


Figure 21

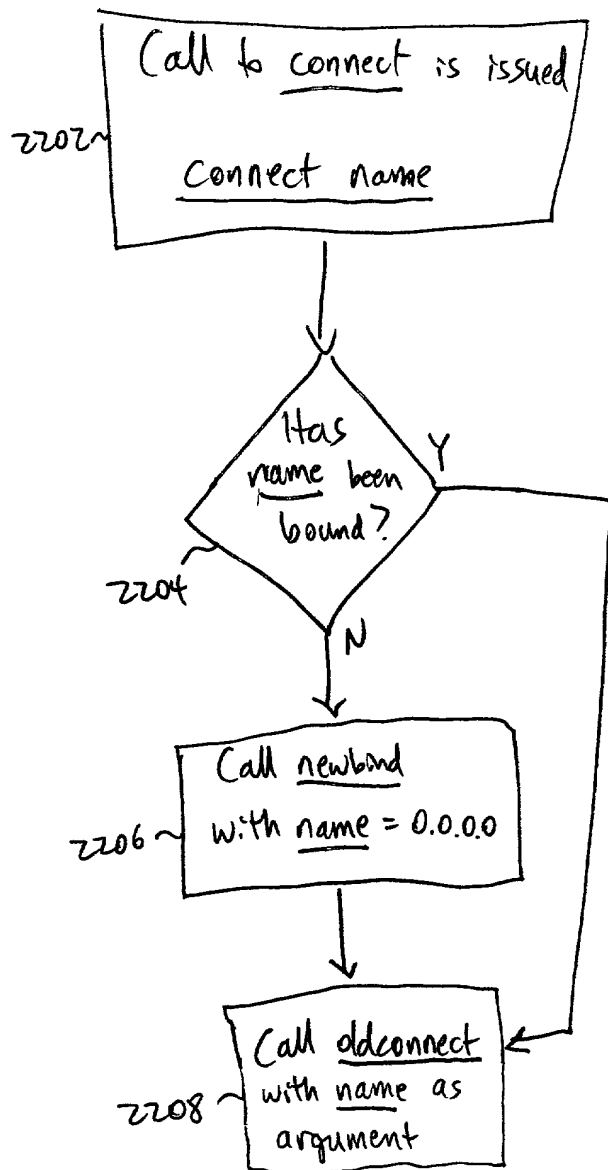


Figure 22

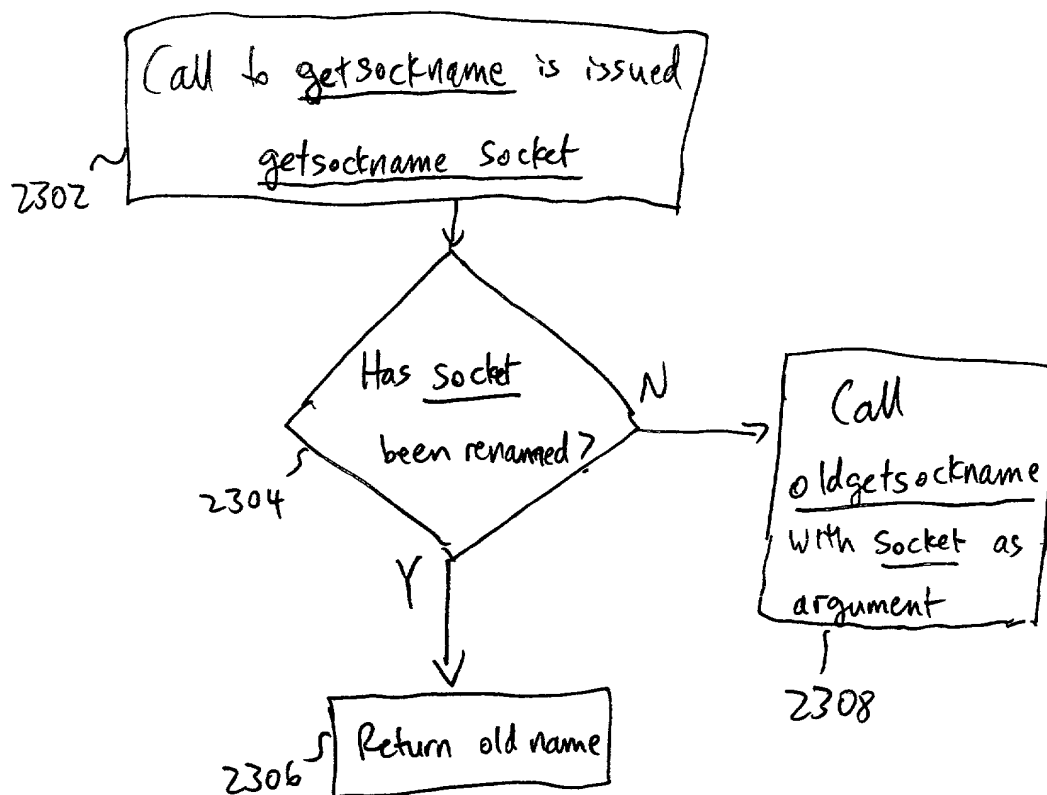


Figure 23

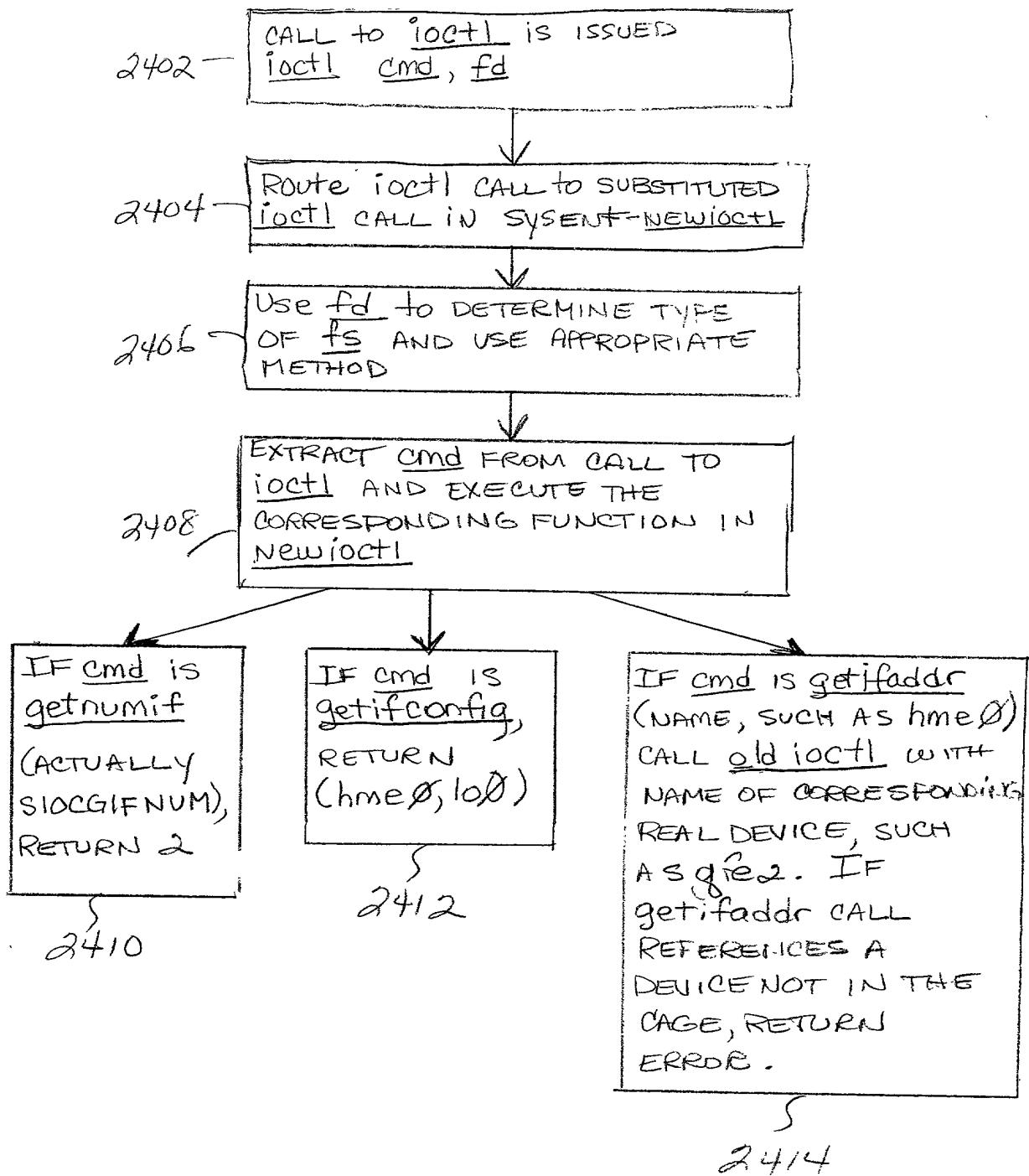


FIGURE 24

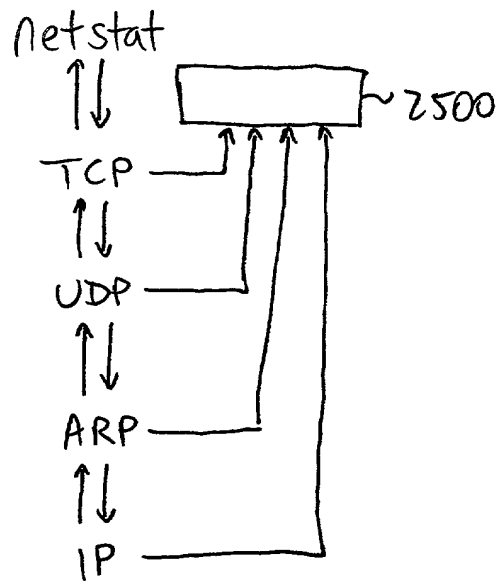


Figure 25

```

<doc>
<regexp-query>
  <name>Possible SGID Exploit</name>
  <properties>
    <priority>10</priority>
  </properties>
  <pattern>
    <next>
      <line>.*exec args=.*pid=\((\d+)\); ppid=\(\d+\); uid=\(\d+\); euid=
\\(\d+)\); gid=\([1-9]\d*\); egid=\(0\).*</line>
    </next>
    <next>
      <line>.*args=\\([\\-\\w\\\\/ ]+\\); pid=\(\d+\); ppid=\(%1%\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*args=\\([\\-\\w\\\\/ ]+\\).*ppid=\(%1%\).*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var="agg">%1%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Possible SGID Exploit: %agg%</text>
  </annotation>
</regexp-query>
</doc>

```

Figure 26

```

<doc>
  <regexp-query>
    <name>Possible SUID Exploit</name>
    <properties>
      <priority>10< /priority>
    </properties>
    <pattern>
      <next>
        <line>.*exec args=.*pid=\((\d+)\); ppid=\(\d+\); uid=\([1-9]\d*\);
euid=\(0\).*</line>
      </next>
      <next>
        <line>.*args=\(.+\); pid=\(\d+\); ppid=\(%1%\).*</line>
      </next>
    </pattern>
    <procmatch>
      <actionpair>
        <line>.*args=\(.+\); pid=\(\d+\); ppid=\(%1%\).*</line>
        <action>
          <highlight/>
          <delete/>
          <varop var="agg">%1%</varop>
        </action>
      </procmatch>
      <annotation>
        <text>Possible SUID Exploit: %agg%</text>
      </annotation>
    </regexp-query>
  </doc>

```

Figure 27

09841659.073001

```
<doc>
<regexp-query>
  <name>All Processes</name>
  <properties>
    <priority>l0</priority>
  </properties>
  <pattern>
    <next>
      <line>.*proclog.*args=\(((\\-\\.\\w\\|\\|/ ]+))\\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*args=\(((\\-\\.\\w\\|\\|/ ]+))\\).*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var="agg">%1%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Process started: %agg%</text>
  </annotation>
</regexp-query>
</doc>
```

Figure 28

```

<doc>
<regexp-query>
  <name>Find Processes...</name>
  <properties>
    <priority>l0</priority>
  </properties>
  <args>
    <args>.+</args>
    <pid>\d+</pid>
    <ppid>\d+</ppid>
    <uid>\d+</uid>
    <euid>\d+</euid>
    <gid>\d+</gid>
    <egid>\d+</egid>
  </args>
  <pattern>
    <next>
      <line>.*args=\(%args%\); pid=\(%pid%\); ppid=\(%ppid%\);
uid=\(%uid%\); euid=\(%euid%\); gid=\(%gid%\); egid=\(%egid%\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*args=\((.+)\); pid.*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var="agg">%l%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Process started: %agg%</text>
  </annotation>
</regexp-query>
</doc>

```

Figure 29

```

<doc>
  <regexp-query>
    <name>All Shell-spawned Processes</name>
    <properties>
      <priority>l0</priority>
    </properties>
    <pattern>
      <next>
        <line>.*exec args=\(-sh\); pid=\(((\d+)\)).*</line>
      </next>
      <next>
        <line>.*args=\(((\[-\w\\\/ ]+)\)).*ppid=\(%l%\).*</line>
      </next>
    </pattern>
    <procmatch>
      <actionpair>
        <line>.*args=\(((\[-\w\\\/ ]+)\)).*ppid=\(%l%\).*</line>
        <action>
          <highlight/>
          <varop var="agg">%l%</varop>
        </action>
      </actionpair>
    </procmatch>
    <annotation>
      <text>Executed from a shell: %agg%</text>
    </annotation>
  </regexp-query>
</doc>

```

Figure 30


```

<doc>
<regexp-query>
  <name>Incoming Connections</name>
  <properties>
    <priority>l0</priority>
  </properties>
  <pattern>
    <next>
      <line>.*incoming connection from=\(.+\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*incoming connection from=\(((.+):(.+)\))
to=\(((.+):(.+)\)).*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var= "fromip">%1%</varop>
        <varop var= "fromport">%2%</varop>
        <varop var= "toip">%3%</varop>
        <varop var= "toport">%4%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Incoming Connection From IP: %fromip% (on port: %fromport%) To
IP: %toip% (on port: %toport%)</text>
  </annotation>
</regexp-query>
</doc>

```

Figure 31

```

<doc>
<regexp-query>
  <name>Keystrokes Entered</name>
  <properties>
    <priority>10</priority>
  </properties>
  <pattern>
    <next>
      <line>.*read stream data, id=\((\d+)\) data=\(.+\).*</line>
    </next>
    <next fromprev="1">
      <line>.*read stream data, id=\(%1%\) data=\(.*\0[ad4].*\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*read stream data, id=\(%1%\) data=\(.+\).*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var="agg">%1%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Keystrokes Entered: %agg%</text>
  </annotation>
</regexp-query>
</doc>

```

Figure 32

09841689.073004

```
<doc>
<regexp-query>
  <name>Screen Output</name>
  <properties>
    <priority>10</priority>
  </properties>
  <pattern>
    <next>
      <line>.*write stream data, id=\((\d+)\) data=\(.+\).*</line>
    </next>
    <next fromprev="1">
      <line>.*write stream data, id=\(%1%\)
data=\(.*\[ad46\].*\).*</line>
    </next>
  </pattern>
  <procmatch>
    <actionpair>
      <line>.*write stream data, id=\(%1%\) data=\(.+\).*</line>
      <action>
        <highlight/>
        <delete/>
        <varop var="agg">%1%</varop>
      </action>
    </actionpair>
  </procmatch>
  <annotation>
    <text>Output to screen: %agg%</text>
  </annotation>
</regexp-query>
</doc>
```

Figure 33

09041669 "073004

```
<doc>
<regexp-query>
  <name>Find Monitored</name>
  <properties>
    <priority>10</priority>
  </properties>
  <args>
    <file_name>.+</file_name>
    <pid>\d+</pid>
  </args>
  <pattern>
    <next>
      <line>.*monitored file opened name=\(%file_name%\)
pid=\(%pid%\).*</line>
    </next>
    </pattern>
    <procmatch>
      <actionpair>
        <line>.*monitored file opened name=\((.+)\)
pid=\((.+)\).*</line>
        <action>
          <highlight/>
          <delete/>
          <varop var="filename">%1</varop>
          <varop var="pidvar">%2</varop>
        </action>
      </actionpair>
    </procmatch>
    <annotation>
      <text>File Opened: %filename% (from pid: %pidvar%)</text>
    </annotation>
  </regexp-query>
</doc>
```

Figure 34